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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,465

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EXAMINER

ROBITAILLE, JOHN P

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,465	Applicant(s) DE LARRARD ET AL.	
	Examiner John P. Robitaille	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07 February 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 15 - 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03 March 2009.

Claim Objections

2. Claim 2 is objected to because of the following informalities: the claim recites that the mortar is molded after curing. There is no support in the specification for the positive step of molding after curing. For the purpose of this action this claim will be interpreted as unmolding after curing to create a self supporting object. Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1, 2, 4, 7, 11, & 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent Application Publication 2003/0109592 (David M. Shulman, 03/952 hereafter).

6. Regarding claim 1, 03/592 teaches A method of fabricating manufactured aggregate, wherein the following steps are performed: supplying a first material comprising particles of sand (para 0015), supplying cement, water and elements, forming a second material (para 0004), mixing a predetermined quantity of said first material with a predetermined quantity of cement, water, and each of said elements of said second material so as to obtain a mortar made up of inclusions corresponding to the first material and a matrix corresponding to the second material (para 0004); subjecting the mortar to a first cure for a predetermined first cure duration (para 0004); and crushing said mortar to obtain manufactured aggregates of a size lying in a range 2mm to 15 mm (para 0004). At paragraph 0004 03/592 recites a particle size of 75 micron to 19 mm. The ordinary artisan at the time of invention would have been motivated to narrow the prior art range to 2-15mm since it was well known at the time of invention that the bulk properties of aggregate depend on the particle size. It would have been obvious to a person of ordinary skill in the art at the time of invention to modify the teachings of 03/592 with the narrower range for the benefit of decreasing the bulk density of the aggregate.

7. Note that the word 'predetermined' has not been accorded patentable weight.

8. Regarding claim 2, 03/592 teaches the method wherein the mortar obtained by mixing is molded after being subjected to the first cure (0006).

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9. Regarding claim 4, 03/592 teaches the method wherein the first material presents a hardness greater than that of the second material (para 0015) and forms hard inclusions in the mortar (para 0015). Note that at paragraph 0015 03/592 recites the use of silica sand. It is well known in the art that silica has a Mohs hardness of about 7 while calcium silicate has a hardness in the range of 4-5 (for Wollonstoneite) on the Mohs scale.

10. Regarding claim 7, 03/592 teaches the method wherein screening is performed to select manufactured grains (para 0004). The issue of particle size was addressed in the rejection of claim 1 above.

11. Regarding claim 11, 03/592 teaches the method wherein the first material comprises particles of a size smaller than 1.5 mm (para 0009).

12. Regarding claim 12, 03/592 teaches the method wherein the elements of the second material include a cement (paragraph 0004).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 3, 13 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0109592 (David M. Shulman) as applied to claim 1 above, and further in view of "Modified water-cement ratio law for silica fume concretes" (S. Bhanja & B. Sengupta; Cement and Concrete Research; 33 (2003) 447-450).

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15. Regarding claim 3, 03/592 does not teach a water content of 30-35 percent.

16. In the same field of endeavor, concrete manufacture Bhanja and Sengupta teach the method wherein the ratio of the quantity of water to the quantity of cement is in the range of 30%-35% (Figure 1. $0.26 \leq w/(c+sf) \leq 0.42$) for the benefit of producing a high strength mortar. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of 03/592 & Bhanja and Sengupta for the benefit of producing a high strength crushed aggregate.

17. Regarding claim 13, 03/592 is silent on the use of silica fume.

18. In the same field of endeavor, cement manufacture, Bhanja & Sengupta teach the use of silica fume for the benefit of increasing the strength of the resulting concrete. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of 03//592 with Bhanja and Sengupta for the benefit of making a high strength crushed aggregate.

19. Claims 5, 6, 8, 9, &10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0109592 (David M. Shulman).

20. Regarding claim 5, 03/592 does not teach a second curing step. It would have been obvious to one having ordinary skill in the art at the time of invention to continue the cure for the benefit of increasing the strength of the concrete, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have motivated to cure for more time for the benefit of strengthening the cement.

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21. Regarding claim 6, 03/592 does not teach a method wherein the predetermined durations of the first and second cures both are substantially equal to 24 hours. It would have been obvious to one having ordinary skill in the art at the time of invention to cure for these durations for the benefit of achieving a desired strength of the concrete, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have motivated to cure for more time for the benefit of achieving a desired strength of the concrete.

22. Regarding claim 8, 03/592 does not teach a third curing step. It would have been obvious to one having ordinary skill in the art at the time of invention to continue the cure for the benefit of increasing the strength of the aggregate, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have motivated to cure for more time for the benefit of strengthening the cement. Hardening of cement by hydration is well understood chemical reaction and is unaffected by the bulk configuration of the mortar cured. The ordinary artisan would have been motivated to conduct this third processing step so that the aggregate can be crushed while it is in a weaker state and then hardening the crushed aggregate to its final hardness for the benefit of allowing the use of smaller crushing apparatuses thereby lowering capital and utility costs.

23. Regarding claim 9, 03/592 does not teach a method wherein duration of the third cure is in the range 10 – 15 days. It would have been obvious to one having ordinary skill in the art at the time of invention to cure for this duration for the benefit of achieving a desired strength of the crushed aggregate, since it has been held that discovering an

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optimum value of a result effective variable involves only routine skill in the art. One would have motivated to cure for more time for the benefit of achieving a desired strength of the concrete.

24. Regarding claim 10, 03/592 teaches the method wherein the first material comprises particles of a size smaller than 1.5 mm (para 0009).

25. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0109592 (David M. Shulman) as applied to claim 1 above, and further in view of "INFLUENCE OF SUPERPLASTICIZER, PLASTICIZER, AND SILICA FUME ON THE DRYING SHRINKAGE OF HIGH-STRENGTH CONCRETE SUBJECTED TO HOT-DRY FIELD CONDITIONS" (S.H. Alsayed; Cement and Concrete Research; Vol. 28, No. 10, pp 1405-1415, 1998).

26. Regarding claim 14, 03/592 is silent on the use of superplasticizer.

27. In the same field of endeavor, cement manufacture, Alsayed teaches the use of a superplasticizer (ABSTRACT) for the benefit of decreasing the amount of water needed to render the mortar flowable. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of 03/592 and Alsayed for the benefit of easing the handling characteristics of the mortar.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Robitaille whose telephone number is (571) 270-7006. The examiner can normally be reached on Monday to Thursday from 8:00 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Del Sole can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPR

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 1791